

WHAT IS CLAIMED IS:

1. A method for performing a percutaneous interbody fusion procedure following a percutaneous discectomy procedure, comprising the steps of:

5 inserting a guide needle through an incision in a patient's body to a position in the disc space between a first and second vertebra;

inserting a dilator over the guide needle to enlarge the disc space to a first desired height;

removing the needle from the dilator;

inserting an expandible intervertebral disc spacer into the disc space through the dilator;

8 expanding the disc spacer to enlarge the disc space to a second desired height;

inserting a bone matrix compound into the disc space through the dilator;

removing the dilator; and

closing the incision.

15 2. The method of Claim 1, wherein the guide needle, the dilator, the disc spacer, and the bone matrix compound are inserted posteriorly of the spine of the patient.

3. The method of Claim 1, wherein the steps of inserting the guide needle, the dilator, and the disc spacer are observed under imaging techniques including fluoroscopy.

20 4. The method of Claim 1, wherein an inner diameter of the dilator is slightly larger than an outer diameter of the guide needle.

5. The method of Claim 4, further comprising the step of successively inserting a

plurality of dilators over a previous dilator to enlarge the disc space to the first desired height.

6. The method of Claim 5, wherein each successive dilator has an inner diameter that is slightly larger than an outer diameter of a previous dilator.

7. A method for performing a percutaneous interbody fusion procedure after removal of a disc, comprising the steps of:

inserting a guide needle through an incision in the patient's body to a position in the disc space between a first and second vertebra on a first lateral side of the patient's spine;

inserting a first dilator having an inner diameter that is slightly larger than an outer diameter of the guide needle over the guide needle to the disc space to enlarge the disc space;

determining if the disc space is at a first desired height;

if the disc space is not at the first desired height, successively inserting a plurality of dilators over the first dilator and guide needle, each successive dilator having an inner diameter that is slightly larger than an outer diameter of a previous dilator to enlarge the disc space to the desired first height;

if the disc space is at the first desired height, removing the guide needle and each dilator except for an outermost dilator;

inserting an expandible intervertebral disc spacer through the dilator to the disc space;

expanding the disc spacer to enlarge the disc space to a second desired height;

inserting a bone matrix compound through the dilator to the disc space;

removing the dilator; and

closing the incision.

8. The method of Claim 7, further comprising repeating each step in the disc space on a second lateral side of the patient's spine.

5 9. The method of Claim 8, wherein the guide needle, the dilators, the disc spacer and the bone matrix compound are inserted posteriorly of the spine.

10. The method of claim 8, wherein the step of expanding the disc spacer enlarges an anterior side of the disc space a greater distance than the posterior side of the disc space to restore lordosis.

11. An expandible intervertebral disc spacer for implantation in a disc space to enlarge the height of the disc space and restore lordosis in a spine of a patient during interbody fusion procedures, comprising:

15 a top portion having an inner surface and an outer surface, and having a first end and a second end;

a bottom portion having an inner surface and an outer surface, and having a first end and a second end, the inner surface of the bottom portion facing the inner surface of the top portion;

a plurality of pins joining the top portion to the bottom portion to permit vertical
20 movement of the top portion with respect to the bottom portion;

the inner surface of the top portion and the inner surface of the bottom portion defining a tapered bore having a diameter at a first end that is greater than a diameter at a second end; and

a rod for insertion into the tapered bore to expand a distance between the top portion and

the bottom portion, the second end of the top portion moving a greater distance with respect to the second end of the bottom portion than the first end.

5 12. The disc spacer of Claim 11, wherein the tapered bore is threaded along at least a portion of its length.

 13. The disc spacer of Claim 12, wherein the rod is threaded.

10 14. The disc spacer of Claim 11, wherein the top portion and bottom portion are constructed of bone material.

 15. The disc spacer of Claim 11, wherein the outer surface of the top portion and the outer surface of the bottom portion are scored to enhance adherence to vertebra of the spine.

15 16. A kit for performing percutaneous interbody fusion surgical procedures, comprising:

 at least one expandible intervertebral disc spacer;

 at least one guide needle;

 a plurality of dilators, a first dilator having an inner diameter that is slightly larger than an
20 outer diameter of the guide needle, and each dilator having an inner diameter successively larger than an outer diameter of a previous dilator; and

 a package including a top cover and a bottom cover, the top cover and the bottom cover forming a package containing the at least one disc spacer, the at least one guide needle, and the

plurality of dilators.

17. The kit of Claim 16, further comprising a tool for delivering the at least one disc spacer through one of the dilators to an intervertebral disc space.

18. The kit of Claim 17, further comprising a bone matrix material.

19. The kit of Claim 16, wherein the package is sterilized after assembly.

20. An expandible intervertebral disc spacer, comprising:

a split cylinder having a top half and a bottom half joined by a plurality of pins to permit movement of the top half with respect to the bottom half, an inner surface of the top half and an inner surface of the bottom half facing each other defining a tapered bore extending from a first end of the cylinder towards a second end of the cylinder; and

a piston screw insertable into the tapered bore to expand the cylinder by moving the top half away from the bottom half;

wherein the piston screw moving into the tapered bore causes the second end of the cylinder to expand a greater distance than the first end.